Author Index to Volume 39

Reference with (A) are abstracts of papers presented at meetings of the Optical Society of America; (T) designates title only; (L) designates Letters to the Editor.

Agnew, J. T., R. G. Franklin, R. E. Benn, and A. Bazarian. Combustion studies with the orthicon spectrograph —409(L)

Anderson, Scott. Orientation of methylene blue molecules adsorbed on solids—49

Arnold, George W., Jr. (see Coleman, Howard S.)—864

Aughey, Henry. Rapid mobile analyzer for minute amounts of lead in air—292

Baker, Howard DeHaven. Course of foveal light adaptation measured by the threshold intensity increment—172; Erratum—367

Baker, Katherine Eleanor. Some variables influencing vernier acuity. I. Illumination and exposure time. II. Wavelength of illumination—567

Barnett, C. E. and L. D. Grady. Emission characteristics of fluorescent pigments—663

Bartlett, N. R. and A. L. Sweet. Visibility on cathode-ray tube screens: signals on a P-7 screen exposed for different intervals—470

——, **S. B. Williams, and R. M. Hanes.** Visibility on cathode-ray tube screens. Effect of size and shape of pip —463

Baum, William A. and Lawrence Dunkelman. Ultraviolet characteristics of the high pressure xenon arc—1055(A)

Baumgartner, R. R. (see Sihvonen, Y. T.)—257

Bazarian, A. (see Agnew, J. T.)—409(L)

Beckman, A. O. (see Miller, W. C.)—377

Belknap, Marion A. (see Gibson, Kasson S.)—1055(A)

Benn, R. E., W. S. Foote, and C. T. Chase. Image orthicon in spectroscopy—529

—— (see Agnew, J. T.)—409(L)

Benson, Nels C. (see Goldberg, Benjamin)—497, 631(A)

Berry, Richard N. (see Riggs, Lorrin A.)—427

Best, George H. Emissivities of copper and aluminum—1009

Billings, Bruce H. Haidinger fringes in a basal section of calcite—39

—— Electro-optic effect in uniaxial crystals of the type X H_2PO_4. I. Theoretical—797

—— Electro-optic effect in uniaxial crystals of the type XH_2PO_4. II. Experimental—802

—— **and M. A. Pittman.** Frustrated total reflection filter for the infra-red—978

Biltz, Martin. Dependence of the sensitivity of unsensitized photographic emulsions upon temperature—994

Bird, George R. (see Blout, Elkan R.)—1052(A)

Blake, R. P., A. S. Makas, and C. D. West. Molecular-type dichroic film polarizers for 0.75 to 2.8 mμ-radiations —1054(A)

Blout, Elkan R., George R. Bird, and David S. Grey. Infra-red microspectroscopy—1052(A)

Brewer, W. L., W. T. Hanson, Jr., and C. A. Horton. Subtractive color reproduction. The approximate reproduction of selected colors—924

Brice, Arthur T. (see Keck, Paul H.)—507

—— (see Saylor, Charles Proffer)—1053(A)

Brode, Wallace R. Presentation of absorption spectra data —1022

—— Book review—528

—— **and Donald L. Timma.** Influence of extraneous elements on line intensity. IV. Etxraneous element effects in the direct-current arc—478

Brown, W. R. J. Eye movements and the variation of visual acuity with test object orientation—1057(A)

—— **and D. L. MacAdam.** Visual sensitivities to combined chromaticity and luminance differences—808

Bube, Richard H. Correlation between cathodoluminescence efficiency and decay as a function of temperature—681, 628(A)

Bullock, B. W. and S. Silverman. Rapid scanning spectrometer for oscillographic recording—200(L)

Bundy, F. P. and H. M. Strong. Transmission of light from diffuse sources by periscope tubes—393; Addendum—698

Burkhart, L. E. (see McNally, J. R., Jr.)—1036

Burnham, Robert W. Comparison of color systems with respect to uniform visual spacing—387

Burton, Ralph A. Modified Schlieren apparatus for large areas of field—907

Byler, W. H. Multibanded emission spectra of zinc-cadmium sulfide phosphors—91(L)

Cady, Willoughby M. and Gary Gordon. Photographic spectral sensitometry with a biprism—368

Carman, P. D. Photogrammetric errors from camera lens decentering—951, 632(A)

Caldecourt, V. J. (see Grossman, H. H.)—261

—— (see Peterson, E. W.)—1055(A)

Chalker, W. R. (see Houghton, H. G.)—955

Chamberlain, Katherine (see Kaczor, Emil)—637(A), 917

Chapanis, Alphonse. Diagnosing types of color deficiency by means of pseudo-isochromatic tests—242

—— **and R. M. Halsey.** Photopic thresholds for red light in an unselected sample of color deficient individuals—1057(A)

Chase, C. T. (see Benn, R. E.)—529

Coleman, Howard S. and Harold E. Rosenberger. Comparison of photographic and photoelectric measurements of atmospheric attenuation of brightness contrast—990

——, **George W. Arnold, Jr., and Walter D. Luedecke.** Method of measuring the contrast rendition of telescopic systems—864

——, **Madeline F. Coleman, and Samuel W. Harding.** Influence of magnification on resolving power of telescopic systems for Foucault test objects of different inherent contrast—771

——, **Madeline F. Coleman, David L. Fridge, and Samuel W. Harding.** Coefficient of specific resolution of the human eye for Foucault test objects viewed through circular apertures—766

——, **Fred J. Morris, Harold E. Rosenberger, and Marshall J. Walker.** Photoelectric method of measuring the atmospheric attenuation of brightness contrast along a horizontal path for the visible region of the spectrum—515

Coleman, Madeline F. (see Coleman, Howard S.)—766, 771

Condit, H. R. (see Jones, Loyd A.)—94, 135, 790

Convey, J. Spectroscopic analysis of segregates in alloys—1060(T)

—— **and J. K. Hurwitz.** Introductory study of the spectral characteristics of ferrous alloys—1061(A)

Cornu, A. F. and P. A. Tardy. Improvement in routine analysis with the Beckman I. R. 2 infra-red spectrophotometer by a slight mechanical modification—613(L)

Coulman, C. E. and G. R. Petrie. Some notes on the designing of aspherical magnifiers for binocular vision—612(L)

Author Index to Volume 39

Reference with (A) are abstracts of papers presented at meetings of the Optical Society of America; (T) designates title only; (L) designates Letters to the Editor.

Agnew, J. T., R. G. Franklin, R. E. Benn, and A. Bazarian. Combustion studies with the orthicon spectrograph —409(L)

Anderson, Scott. Orientation of methylene blue molecules adsorbed on solids—49

Arnold, George W., Jr. (see Coleman, Howard S.)—864

Aughey, Henry. Rapid mobile analyzer for minute amounts of lead in air—292

Baker, Howard DeHaven. Course of foveal light adaptation measured by the threshold intensity increment—172; Erratum—367

Baker, Katherine Eleanor. Some variables influencing vernier acuity. I. Illumination and exposure time. II. Wavelength of illumination—567

Barnett, C. E. and L. D. Grady. Emission characteristics of fluorescent pigments—663

Bartlett, N. R. and A. L. Sweet. Visibility on cathode-ray tube screens: signals on a P-7 screen exposed for different intervals—470

——, **S. B. Williams, and R. M. Hanes.** Visibility on cathode-ray tube screens. Effect of size and shape of pip —463

Baum, William A. and Lawrence Dunkelman. Ultraviolet characteristics of the high pressure xenon arc—1055(A)

Baumgartner, R. R. (see Sihvonen, Y. T.)—257

Bazarian, A. (see Agnew, J. T.)—409(L)

Beckman, A. O. (see Miller, W. C.)—377

Belknap, Marion A. (see Gibson, Kasson S.)—1055(A)

Benn, R. E., W. S. Foote, and C. T. Chase. Image orthicon in spectroscopy—529

—— (see Agnew, J. T.)—409(L)

Benson, Nels C. (see Goldberg, Benjamin)—497, 631(A)

Berry, Richard N. (see Riggs, Lorrin A.)—427

Best, George H. Emissivities of copper and aluminum—1009

Billings, Bruce H. Haidinger fringes in a basal section of calcite—39

—— Electro-optic effect in uniaxial crystals of the type X H_2PO_4. I. Theoretical—797

—— Electro-optic effect in uniaxial crystals of the type XH_2PO_4. II. Experimental—802

—— **and M. A. Pittman.** Frustrated total reflection filter for the infra-red—978

Biltz, Martin. Dependence of the sensitivity of unsensitized photographic emulsions upon temperature—994

Bird, George R. (see Blout, Elkan R.)—1052(A)

Blake, R. P., A. S. Makas, and C. D. West. Molecular-type dichroic film polarizers for 0.75 to 2.8 mμ-radiations —1054(A)

Blout, Elkan R., George R. Bird, and David S. Grey. Infra-red microspectroscopy—1052(A)

Brewer, W. L., W. T. Hanson, Jr., and C. A. Horton. Subtractive color reproduction. The approximate reproduction of selected colors—924

Brice, Arthur T. (see Keck, Paul H.)—507

—— (see Saylor, Charles Proffer)—1053(A)

Brode, Wallace R. Presentation of absorption spectra data —1022

—— Book review—528

—— **and Donald L. Timma.** Influence of extraneous elements on line intensity. IV. Etxraneous element effects in the direct-current arc—478

Brown, W. R. J. Eye movements and the variation of visual acuity with test object orientation—1057(A)

—— **and D. L. MacAdam.** Visual sensitivities to combined chromaticity and luminance differences—808

Bube, Richard H. Correlation between cathodoluminescence efficiency and decay as a function of temperature—681, 628(A)

Bullock, B. W. and S. Silverman. Rapid scanning spectrometer for oscillographic recording—200(L)

Bundy, F. P. and H. M. Strong. Transmission of light from diffuse sources by periscope tubes—393; Addendum—698

Burkhart, L. E. (see McNally, J. R., Jr.)—1036

Burnham, Robert W. Comparison of color systems with respect to uniform visual spacing—387

Burton, Ralph A. Modified Schlieren apparatus for large areas of field—907

Byler, W. H. Multibanded emission spectra of zinc-cadmium sulfide phosphors—91(L)

Cady, Willoughby M. and Gary Gordon. Photographic spectral sensitometry with a biprism—368

Carman, P. D. Photogrammetric errors from camera lens decentering—951, 632(A)

Caldecourt, V. J. (see Grossman, H. H.)—261

—— (see Peterson, E. W.)—1055(A)

Chalker, W. R. (see Houghton, H. G.)—955

Chamberlain, Katherine (see Kaczor, Emil)—637(A), 917

Chapanis, Alphonse. Diagnosing types of color deficiency by means of pseudo-isochromatic tests—242

—— **and R. M. Halsey.** Photopic thresholds for red light in an unselected sample of color deficient individuals—1057(A)

Chase, C. T. (see Benn, R. E.)—529

Coleman, Howard S. and Harold E. Rosenberger. Comparison of photographic and photoelectric measurements of atmospheric attenuation of brightness contrast—990

——, **George W. Arnold, Jr., and Walter D. Luedecke.** Method of measuring the contrast rendition of telescopic systems—864

——, **Madeline F. Coleman, and Samuel W. Harding.** Influence of magnification on resolving power of telescopic systems for Foucault test objects of different inherent contrast—771

——, **Madeline F. Coleman, David L. Fridge, and Samuel W. Harding.** Coefficient of specific resolution of the human eye for Foucault test objects viewed through circular apertures—766

——, **Fred J. Morris, Harold E. Rosenberger, and Marshall J. Walker.** Photoelectric method of measuring the atmospheric attenuation of brightness contrast along a horizontal path for the visible region of the spectrum—515

Coleman, Madeline F. (see Coleman, Howard S.)—766, 771

Condit, H. R. (see Jones, Loyd A.)—94, 135, 790

Convey, J. Spectroscopic analysis of segregates in alloys—1060(T)

—— **and J. K. Hurwitz.** Introductory study of the spectral characteristics of ferrous alloys—1061(A)

Cornu, A. F. and P. A. Tardy. Improvement in routine analysis with the Beckman I. R. 2 infra-red spectrophotometer by a slight mechanical modification—613(L)

Coulman, C. E. and G. R. Petrie. Some notes on the designing of aspherical magnifiers for binocular vision—612(L)

Cramer, A. I. (see Weyl, W. A.)—889(L)
Crawford, M. F., W. M. Gray, A. L. Schawlow, and F. M. Kelly. Transmission and reflection coefficients of aluminum films for interferometry—888(L)

Davidson, H. R. Calculation of subtractive color mixtures —1055(A)
—— **and L. W. Imm.** Continuous, automatic tristimulus integrator for use with the recording spectrophotometer—633(A), 942
Davis, George E. Method of measuring high intensities at the focus of a parabolic reflector with large relative aperture—541
Dawson, L. H. (see Plymale, W. S., Jr.)—626(A), 712
deBretteville, A. P., Jr. (see Field, Norman J.)—1053(A)
de Launay, Jules. Note on the photo-pupil reflex—364
de Vries, Hl. Light quanta and vision—201(L)
di Francia, G. Toraldo. Retina cones as dielectric antennas —324(L)
Di Jorio, Mario. General theory of isoplanatism for finite aperture and field—305
Dunkelman, Lawrence (see Baum, William A.)—1055(A)
Duntley, Seibert Q., Edward A. Edwards, and Nisson A. Finkelstein. Spectrophotometric studies of living human skin in the ultraviolet—1056(A)
Dyer, C. A. (see Mouzon, J. C.)—203

Edwards, Edward A. (see Duntley, Seibert Q.)—1056(A)
Ehrenberg, W. X-ray optics: the production of converging beams by total reflection—741
—— X-ray optics: imperfections of optical flats and their effect on the reflection of x-rays—746
Ellickson, R. T. (see Scott, F. R.)—64
Enns, J. H. and R. A. Wolfe. Air interrupter type spectrographic light source—298
Enright, D. P. (see Weyl, W. A.)—889(L)
Epstein, L. Ivan. Out of focus diffraction patterns—226
—— Aberrations of slightly decentered optical systems—847
—— An extension of Toraldo's theory of phase contrast—1053(A)
Evans, John W. Birefringent filter—229; Correction—412
Evans, Ralph M. On some aspects of white, gray, and black—774

Fano, U. Remarks on the classical and quantum-mechanical treatment of partial polarization—859
Farnsworth, Dean. Chromaticity confusions of color defectives—1056(A)
Fassel, Velmer A. Quantitative spectrographic analysis of the rare earth elements. III. Determination of major constituents in complex mixtures—187
Fellgett, P. B. On the ultimate sensitivity and practical performance of radiation detectors—970
Ferretti, Renato J. (see Price, George R.)—1053(A), 1053(A)
Fetterley, G. H. and W. M. Hazel. D.c. arc source and automatic controller—1060(A)
Field, Norman J. and A. P. deBretteville, Jr. Motion pictures of some optical and electrical effects in barium titanate crystals—1053(A)
Finkelnburg, Wolfgang. Conditions for blackbody radiation of gases—185
Finkelstein, Nisson A. Spectral reflectance measurements in the ultraviolet—1056(A)
—— (see Duntley, Seibert Q.)—1056(A)
Fonda, Gorton R. (see Studer, Frank J.)—655
Foote, W. S. (see Benn, R. E.)—529
Foster, L. V. Microscope optics—1052(T)
Frank, Sylvia (see Hecht, Selig)—922
Franklin, R. G. (see Agnew, J. T.)—409(L)
Fred, Mark (see Tomkins, Frank S.)—357, 637(A)
Frerichs, Rudolf. Photo-conductivity in crystal phosphors —1053(A)
Fridge, David L. (see Coleman, Howard S.)—766
Friedman, H. and C. P. Glover. Optical transmission of additively colored alkali halide crystals in the visible and near infra-red—795(L)
Fry, D. L. Infra-red absorption analyses used in control of a pilot-plant process—402
—— (see Sihvonen, Y. T.)—257

Gabel, Joseph W. and E. I. Stearns. Auxiliary working standard equivalent to magnesium oxide on a General Electric spectrophotometer—481
Garlick, G. F. J. and A. F. Gibson. Luminescence of photoconducting phosphors—935
Gayhart, E. L. and Rochelle Prescott. Interference phenomenon in the schlieren system—546
Gee, Alan E. and Harry D. Polster. Method for measuring extremely small non-uniformities in the optical thickness of evaporated films—1044
—— **and H. D. Polster.** Thickness non-uniformities in evaporated films—1054(A)
Geiger, Ernesto E. Direct calculation of achromatized and corrected optical systems—193
Geiger, Felix E., Jr. Effect of finite aperture on the fringe intensity distribution of Fabry Perot interferometers—249
George, K. P. (see Miller, W. C.)—377
Gibson, A. F. (see Garlick, G. F. J.)—935
Gibson, Kasson S. and Marion A. Belknap. Permanence of glass standards issued to check the photometric scale of spectrophotometers—1055(A)
Gilstein, J. B. (see Hett, J. H.)—909
Glover, C. P. (see Friedman, H.)—795(L)
Goddard, P. E. (see Pearlman, D.)—628(A), 695
Golay, Marcel J. E. Multi-slit spectrometry—437
Goldberg, Benjamin and Nels C. Benson. Analysis of para-elliptic reflector—497, 631(A)
Gordon, Gary (see Cady, Willoughby M.)—368
Grady, L. D. (see Barnett, C. E.)—663
Graham, Robert (see Safonov, George)—406
Gray, Peter. Optical microscope as seen by a user—1052(T)
Gray, W. M. (see Crawford, M. F.)—888(L)
Green, Milton and T. Schreiber. Analytical equation of the emulsion calibration curve of photographic photometry—1058(A)
Grey, David S. New series of microscope objectives: II. Preliminary investigation of catadioptric Schwarzschild systems—723
—— **and Paul H. Lee.** New series of microscope objectives: I. Catadioptric Newtonian systems—719
—— (see Blout, Elkan R.)—1052(A)
Griffin, P. M. (see McNally, J. R., Jr.)—1036
Grosch, H. R. J. Ray tracing with the selective sequence electronic calculator—1059(A)
Gross, Paul M. (see Scheraga, Harold A.)—410(L)
Grossman, H. H., E. W. Peterson, J. L., Saunderson, and V. J. Caldecourt. Optical and electrical alterations to a Michigan microphotometer—261
—— (see Peterson, E. W.)—1055(A)

Haber, Heinz. Mount for a Perot-Fabry interferometer without etalon ring—1050(L)
—— Torus grating—1055(A)
Hainer, R. M. (see McMahon, H. O.)—786
Halsey, R. M. (see Chapanis, Alphonse)—1057(A)
Hamly, D. H. Ridgeway color standards with a Munsell notation key—592, 633(A)

Hammad, A. Scattered and rescattered sunlight—157
Hanes, R. M. (see Bartlett, N. R.)—463
Hanson, W. T., Jr. (see Brewer, W. L.)—924
Harding, Samuel W. (see Coleman, Howard S.)—766, 771
Hardy, Arthur C., and F. Mansfield Young. Correction of slit-width errors—265, 638(A)
—— **and F. Mansfield Young.** Colorimetry by abridged spectrophotometry—460, 634(A)
Hare, G. (see Miller, W. C.)—377
Harle, G. A. Comparison of lens radii—718(L)
Harrison, George R. Production of diffraction gratings I. Development of the ruling art—413
—— Production of diffraction gratings: II. Design of eschelle gratings and spectrographs—522
—— Editorial comment—977
—— (see Jacobsen, Edward)—1054(A)
Hasler, M. F. Recent advances in the direct-reading analysis of high percentage alloys—1062(A)
——, **R. W. Lindhurst, J. W. Kemp, and M. C. Kraushaar.** New spectrometer for production control quantometer—1060(A)
Hass, Georg. Preparation of hard oxide films with precisely controlled thickness on evaporated aluminum mirrors—532, 632(A)
—— **and Noel W. Scott.** Silicon monoxide protected front-surface mirrors—179
Hazel, W. M. (see Fetterley, G. H.)—1060(A)
Hecht, Selig, Charles D. Hendley, Sylvia Frank, and Simon Shlaer. Contrast discrimination charts for demonstrating the effect of anoxia on vision—922
—— (see Hendley, Charles D.)—630(A), 870
Hendley, Charles D. and Selig Hecht. Colors of natural objects and terrains, and their relation to visual color deficiency—630(A), 870
—— (see Hecht, Selig)—922
Herman, Robert C. and Charles F. Meyer. Rise in brightness on infra-red sensitive phosphors—729
—— (see Silverman, S.)—216
Herzberger, M. and H. Jenkins. Color correction in optical systems and types of glass—1058(A)
Hett, J. H. and J. B. Gilstein. Pyrometer for measurement of instantaneous temperatures of flames—909
Hitchcock, William J. (see McNally, J. Rand, Jr.)—57
Hobbs, Marcus E. (see Scheraga, Harold A.)—410(L)
Hoerlin, Herman. Photographic action of x-rays in the 1.3 to 0.01A range—891
Holmes, Marian C. (see Middleton, W. E. Knowles)—582, 631(A)
Hopkins, R. E. Secondary color in optical relay systems—919, 1059(A)
—— **and Brian O'Brien.** Artificial sapphire for optical elements—1060(A)
Hornig, Donald F. Infra-red and Raman spectra of crystals—1061(T)
Horton, C. A. (see Brewer, W. L.)—924
Houghton, H. G. and W. R. Chalker. Scattering cross section of water drops in air for visible light—955
Hsü, Hsien-Yü (see Richartz, M.)—136
Huber, R. L. and A. B. Rakus. Photoelectric reflection-transmission densitometer—873
Hughes, Harold K. and R. W. Murphy. Emulsion calibration scale for quantitative spectroscopic analysis—501
Hulburt, E. O. Night sky brightness measurements in latitudes below 45°—211
—— Green segment seen from an airplane—409(L)
Humphreys, Curtis J. Extensions to the analysis of the infra-red spectra of the noble gases—1059(A)
Hunter, Richard S. Improved gloss recorder—1056(A)
Hurwitz, J. K. (see Convey, J.)—1061(A)
Imm, L. W. (see Davidson, H. R.)—633(A), 942
Ivanoff, A. Focusing wave-length for white light—718(L)
Ives, Herbert E. Book Review—297
—— Lorentz-type transformations as derived from performable rod and clock operations—757

Jacobsen, Edward and George R. Harrison. Ultrafrequency excitation of Hg 198 lamps for interferometer illumination—1054(A)
Jacquinot, P. and P. Rouard. International colloquium on solid thin films—1048(L)
Jean, J. N. and Brian O'Brien. Microwave test of a theory of the Stiles and Crawford effect—1057(A)
Jenkins, H. (see Herzberger, M.)—1058(A)
Jerrard, H. G. Formation of fringes in a babinet compensator—1031
Johnson, James S., Jr. and Ferd E. Williams. Thermoluminescence of manganese-activated zinc fluoride phosphors—629(A), 709
Jones, Ernest A. (see Kirby-Smith, J. S.)—780
Jones, Loyd, A. and H. R. Condit. Sunlight and skylight as determinants of photographic exposure. II. Scene structure, directional index, photographic efficiency of daylight, safety factors, and evaluation of camera exposure—94
—— **and H. R. Condit.** Errata: Sunlight and skylight as determinants of photographic exposure. I. Luminous density as determined by solar altitude and atmospheric conditions—135
—— **and H. R. Condit.** Errata: Sunlight and skylight as determinants of photographic exposure. I. Luminous density as determined by solar altitude and atmospheric conditions—790
Jones, R. Clark. New classification system for radiation detectors—327
—— Erratum: Ultimate sensitivity of radiation detectors—343
—— Factors of merit for radiation detectors—344
—— On the possibility of a spathic polarizer which transmits more than one-half of the incident unpolarized light—1058(A)
—— (see Shurcliff, W. A.)—912
Judd, Deane B. Color perceptions of deuteranopic and protanopic observers—252
—— Standard response functions for protanopic and deuteranopic vision—505(L)
—— Book review—765
——Comparison of direct colorimetry of titanium pigments with their indirect colorimetry based on spectrophotometry and a standard observer—945
——**and Lorenzo Plaza.** Tritanopia with abnormally heavy ocular pigmentation—1056(A)
Jurmain, J. H. (see Magrun, W.)—1060(A)

Kaczor, Emil and Katherine Chamberlain. Air interrupter for use with the A.R.L. spark source—637(A), 917
Katz, Amrom H. Camera shutters—1
Keck, Paul H. and Arthur T. Brice. Image contrast in phase-contrast microscopy—507
Kelly, F. M. (see Crawford, M. F.)—888(L)
Kemp, J. W. (see Hasler, M. F.)—1060(A)
King, Gilbert W. (see McMahon, H. O.)—786
Kirby-Smith, J. S., and Ernest A. Jones. Use of polytrifluorochloroethylene in infra-red and Raman spectroscopy—780
Kirkatrick, Paul. X-ray images by refractive focusing—796(L)
Kivenson, Gilbert, Albert Roth, and Myrtle Rider. Some new techniques in the construction of spectrographic absorption cells—484
Klein, Myron W. (see Smakula, Alexander)—445; Erratum—890(L)

Knoll, Henry A. Comment on "A note on the photo-pupil reflex"—954(L)
Kohn, Hedwig and H. Sponer. Absorption spectrum of 1,2,4-trichlorobenzene in the near ultraviolet—75
Koomen, M., R. Tousey, and R. Scolnik. Spherical aberration of the eye—370
Koppius, O. G. Detection of lead in air with the aid of a Geiger-Müller counter—294
Kornfeld, G. Herschel effect and the structure and stability of the photographic latent image—490
—— Latent-image distribution by x-ray exposures—1020
Kraushaar, M. C. (see Hasler, M. F.)—1060(A)
Kröger, F. A. Sodium and lithium as activators of fluorescence in zinc sulfide—670
—— (see Smit, N. W.)—661

Lamar, Edward S. Fraunhofer diffraction patterns of squares and rectangles—929
Lee, Bernard S. Oblique reflecting systems—487
Lee, Paul H. (see Grey, David S.)—719
Lindhurst, R. W. (see Hasler, M. F.)—1060(A)
Linfoot, E. H. and E. Wolf. On the corrector plates of Schmidt cameras—752
Longini, R. L. Optical characteristics of sheets of scattering materials—551
—— Intrinsic efficiency of the cathodoluminescence process—877
Loofbourow, John. Microspectroscopy—1052(T)
Lowe, D. S. (see Sponer, H.)—840
Luedecke, Walter D. (see Coleman, Howard S.)—864

MacAdam, David L. Colorimetric analysis of dye mixtures—22
—— Measurement of the influence of local adaptation on color matching—454, 631(A)
—— (see Brown, W. R. J.)—808
Magrun, W., M. Windle, and J. H. Jurmain. Comparative results of photographic and direct reading methods of analysis of high alloy steels—1060(A)
Mahoney, Marie M. (see Smith, Daniel)—86
Makas, A. S. (see Blake, R. P.)—1054(A)
—— (see West, C. D.)—791
Margenau, Henry. Book review—489
Marton, L. Electrons *vs.* protons—a comparison of microscopes—1052(T)
Matossi, Frank. On the utilization of complex optical constants—506(L)
—— Reflection and transmission formulas for a film on a backing plate—928
McKelvey, J. P. (see Rank, D. H.)—762
McMahon, H. O., R. M. Hainer, and Gilbert W. King. Low temperature infra-red transmission cell—786
McMath, Robert R. and Orren C. Mohler. Solar spectroscopy with a Cashman cell—903
McNally, J. Rand, Jr. Preliminary investigation of the spectra of uranium isotopes—271
—— Nomograph of HG 5461 structure as a function of etalon separation—1050(L)
——, **P. M. Griffin, and L. E. Burkhart.** Possibility of enhanced HG^{199} as a source of monochromatic light—1036
——, **Julius P. Molnar, William J. Hitchcock, and Norman F. Oliver.** High members of the principal series in caesium—57
Meggers, William F. and Bourdon F. Scribner. Emission spectra of technetium—1059(A)
Menzies, A. C. New Raman spectrograph and source—1061(A)
—— Infra-red spectrophotometer with cathode-ray display 1061(A)
Meyer, Charles F. (see Herman, Robert C.)—729
Middleton, W. E. Knowles. Effect of the angular aperture of a telephotometer on the telephotometry of collimated and non-collimated beams—576
—— **and Marian C. Holmes.** Apparent colors of surfaces of small subtense—A preliminary report—582, 631(A)
Miller, W. C., G. Hare, D. C. Strain, K. P. George, M. E. Stickney, and A. O. Beckman. New spectrophotometer employing a glass Fery prism—377
Mohler, Orren C. (see McMath, Robert R.)—903
Molby, Fred A. Index of refraction and coefficients of expansion of optical glasses at low temperatures—600
Molnar, Julius P. (see McNally, J. Rand, Jr.)—57
Morris, Fred J. (see Coleman, Howard S.)—515
Mouzon, J. C., and C. A. Dyer. Low temperature radiation pyrometry in industry—203
Mrozowski, S. Anomalous rotational isotope effect in mercury hydride—1061(A)
Mueller, F. W. H. Some remarks on gold treatment of photographic silver halide emulsions—494, 639(A)
Murphy, R. W. (see Hughes, Harold K.)—501
Murray, Allen E. Reflected light and ghosts in optical systems—30; Erratum—356

Nagy, Elemér. Optical and electrical properties of zinc silicate phosphors—42
Nail, N. R., F. Urbach, and D. Pearlman. New observations on superlinear luminescence—628(A), 690
—— (see Urbach, F.)—628(A), 675, 1011
Nelson, R. C. Direct recording of spectra in the region 1.2 μ to 3 μ using the lead sulfide photo-conductive cell—68
Newbound, Kenneth B. Refractive indices of water vapor and carbon dioxide at low pressure—835
Nickerson, Dorothy. Munsell renotations used to study color space of Hunter and of Adams—1055(A)
Nielsen, J. Rud. Aberrations in ellipsoidal mirrors used in infra-red spectrometers—59
Nottingham, Wayne B. Survey of present methods used to determine the optical properties of phosphors—641
Nusbaum, R. E. (see Sihvonen, Y. T.)—257

O'Brien, Brian. Comment on the note entitled "Retinal cones as dielectric antennas"—324(L)
—— (see Hopkins, Robert E.)—1060(A)
—— (see Jean, J. N.)—1057(A)
Ogle, Kenneth N. Theory of the induced effect in binocular vision—1057(A)
Oliver, Norman F. (see McNally, J. Rand, Jr.)—57
Osterberg H. Microscope imagery and interpretations—1052(T)
—— **and J. Ernest Wilkins, Jr.** Resolving power of a coated objective—553
—— **and Franklyn C. Wissler.** Resolution of two particles in a bright field by coated microscope objectives—558, 638(A)
Otero, J. M., L. Plaza, and F. Salaverri. Absolute thresholds and night myopia—167

Parkinson, W. W., Jr. and Ferd E. Williams. Vacuum ultraviolet monochromator for absorption and photoconductivity measurements on luminescent solids—627(A), 705
Patten, Stanley H. and Ferd E. Williams. Emission spectrum of manganese-activated magnesium germanate—629(A), 702
Pearlman, D., P. E. Goddard, and F. Urbach. Simplified Lenard phosphors—628(A), 695
—— (see Nail, N. R.)—628(A), 690
—— (see Urbach, F.)—628(A), 675

Peck, E. R. (see Sittner, W. R.)—474, 544, 635(A)
Peckham, R. H. Measurement of the luminescence of fluoroscopic x-ray screens—626(A), 714
—— Visual acuity through various types and grades of sun glass lenses—1057(A)
Penner, S. S. Radiant heat transfer to receivers moving along the axis of a right circular cylindrical chamber—200(L)
Petersen, E. W., H. H. Grossman, J. L. Saunderson, and V. J. Caldecourt. Electrical tristimulus integrator—1055(A)
—— (see Grossman, H. H.)—261
Petrie, G. R. (see Coulman, C. E.)—612(L)
Pfund, A. H. High index refractometer—966
Pittenger, J. T. (see Shenstone, A. G.)—219
Pittman, M. A. (see Billings, Bruce H.)—978
Plank, William C. Non-intermittent motion picture projection—505(L)
Platt, John R. Further remarks on the Stiles-Crawford effect—614(L)
Plaza, Lorenzo (see Judd, Deane B.)—1056(A)
—— (see Otero, J. M.)—167
Plyler, Earl K. (see Tilton, Leroy W.)—1060(A)
Plymale, W. S., Jr. and L. H. Dawson. Photometric evaluation of luminous materials for naval uses—626(A), 712
Polster, Harry D. Reflection from a multilayer filter—1038
—— Dielectric interferometer filter—1054(A)
—— (see Gee, Alan E.)—1054(A)
Prescott, Rochelle (see Gayhart, E. L.)—546
Price, George R. Fluorescence studies of plutonium and neptunium—1054(A)
——, **Renato J. Ferretti, and Samuel Schwartz.** Fluorophotometric determination of uranium—1053(A)
——, **Renato J. Ferretti, and Samuel Schwartz.** Sensitive fluorophotometers—1053(A)

Rakus, A. B. (see Huber, R. L.)—873
Rank, D. H. and J. P. McKelvey. Study of the mechanism of modified Rayleigh scattering—762
——, **Paul Yoder, Jr., and Joseph Vrabel.** Sensitivity of a rapid test for high speed parabolic mirrors—36
Ray, Kamalesh. On the mechanism of optical polishing—92(L)
Richartz, M., and Hsien-Yü Hsü. Analysis of elliptical polarization—136
Rider, Myrtle (see Kivenson, Gilbert)—484
Riggs, Lorrin A., Richard N. Berry, and Matthew Wayner. Comparison of electrical and psychophysical determinations of the spectral sensitivity of the human eye—427
Rood, Joseph L. Some properties of thin evaporated films on glass—854
Rosenbaum, Alma (see Studer, Frank J.)—627(A), 685
Rosenberger, Harold E. (see Coleman, Howard S.)—515, 990
Roth, Albert (see Kivenson, Gilbert)—484
Rouard, P. (see Jacquinot, P.)—1048(L)
Rupert, C. S. and John Strong. Carbon arc as an infra-red source—1060(A)

Safonov, George and Robert Graham. Prismatic properties of ophthalmic lenses—406
Salaverri, F. (see Otero, J. M.)—167
Saunderson, J. L. (see Grossman, H. H.)—261
—— (see Peterson, E. W.)—1055(A)
Sayama, Yoshihiro. Optical theory of the spectral sensitivity of a caesium oxide photo-cathode—162
Saylor, Charles Proffer, Arthur T. Brice, and F. Zernike. Color phase contrast: requirements and applications—1053(A)
Schawlow, A. L. (see Crawford, M. F.)—888(L)
Scheraga, Harold A., Marcus E. Hobbs, and Paul M. Gross. Relative measurement of Kerr constants—410(L)
Schreiber, T. (see Green, Milton)—1058(A)
Schwartz, Samuel (see Price, George R.)—1053(A), 1053(A)
Scolnik, R. (see Koomen, M.)—370
Scott, F. R., R. H. Thompson, and R. T. Ellickson. Inertia effects in infra-red sensitive phosphors—64
Scott, Noel W. (see Hass, Georg)—179
Scribner, B. F. Effect of gaseous atmospheres on excitation in emission spectroscopy—1059(T)
—— (see Meggers, William F.)—1059(A)
—— **and J. T. Pittenger.** Cadmium spectra—219
Shlaer, Simon (see Hecht, Selig)—922
Shrader, R. E. Temperature-dependent structure of the emission spectra of two crystalline forms of the zinc silicate: Mn phosphor—629(A), 699
Shurcliff, William A. Multi-slit double monochromator using no moving parts—1048(L)
—— **and R. Clark Jones.** Trapping of fluorescent light produced within objects of high geometrical symmetry—912
—— **and E. I. Stearns.** New "offset" method of interpreting spectrophotometric curves—72
Sihvonen, Y. T., D. L. Fry, R. E. Nusbaum, and R. R. Baumgartner. Spectrographic analysis of high cobalt (vitallium) alloys—257
Silverman, Shirleigh. Determination of flame temperatures by infra-red radiation—275
—— **and R. C. Herman.** Infra-red emission spectra of the oxy-hydrogen and oxy-deuterium flames—216
—— (see Bullock, B. W.)—200(L)
Sinclair, D. A. Characteristics of pulsed arcs in spectrochemical analysis. Part I: zinc alloys—958
Sittner, W. R. and E. R. Peck. Spectra of argon, krypton, and xenon between 1.2 and 2.2 microns—474, 635(A)
—— **and E. R. Peck.** Recording interferometer for precision wave-length determinations—544
Smakula, Alexander and Myron W. Klein. Plastic deformation and crystal orientation of thallium halides—445; Erratum—890(L)
Smit, N. W. and F. A. Kröger. Luminescence of zinc sulfide activated by lead—661
Smith, Daniel and Marie M. Mahoney. Preparation and application of reproducible gloss standards—86
Sponer, H. and D. S. Lowe. Absorption spectrum of benzotrifluoride vapor in the near ultraviolet—840
—— (see Kohn, Hedwig)—75
Stearns, E. I. (see Gabel, Joseph W.)—481
—— (see Shurcliff, W. A.)—72
Stempel, Waldemar M. Erratum: A differential adjustment method of refining optical systems—199
Stephens, Robert E. (see Tilton, Leroy W.)—1060(A)
Stickney, M. E. (see Miller, W. C.)—377
Stockbarger, Donald C. Artificial fluorite—731
Strain, D. C. (see Miller, W. C.)—377
Strong, John. Resolving power limitations of grating and prism spectrometers—320
—— (see Rupert, C. S.)—1060(A)
Strong, H. M. (see Bundy, F. P.)—393; Addendum—698
Studer, Frank J. and Gorton R. Fonda. Optical properties of calcium silicate phosphors—655
—— **and Alma Rosenbaum.** Phosphorescence decay of halophosphates and other doubly activated phosphors—627(A), 685
Sweet, A. L. (see Bartlett, N. R.)—470

Tardy, P. A. (see Cornu, A. F.)—613(L)
Terrien, J. On the standard source for low level photometry—888(L)

Thompson, R. H. (see Scott, F. R.)—64
Tilton, Leroy, W., Earl K. Plyler, and Robert E. Stephens. Refractive index of silver chloride for visible and infra-red radiant energy—1060(A)
Timma, D. L. Spark spectra of elements 43 and 61—898
—— (see Brode, Wallace R.)—478
Tomkins, Frank S. and Mark Fred. Spectra of the heavy elements—357, 637(A)
Tousey, R. (see Koomen, M.)—370
Tyler, John E. Optimum absorption—264(L)

Urbach, F., N. R. Nail, and D. Pearlman. Asymptotic behavior of spontaneous and forced decay—628(A), 675
——, **N. R. Nail, and D. Pearlman.** Observation of temperature distributions and of thermal radiation by means of non-linear phosphors—1011
—— (see Nail, N. R.)—628(A), 690
—— (see Pearlman, D.)—628(A), 695

van Heel, A. C. S. High precision measurements with simple equipment—1054(T)
Vašiček, Antonin. Reflecting power of glass with a thin and with a thick film—409(L)
Vrabel, Joseph (see Rank, D. H.)—36

Wagman, Irving H. Book review—264
Wald, George. Eye and the camera—1057(T)
Walker, Marshall J. (see Coleman, Howard S.)—515
Warga, Mary E. Book review—911
Wayner, Matthew (see Riggs, Lorrin A.)—427
Weaver, K. S. Provisional standard observer for low level photometry—278
Webb, Julian H. Study of low intensity reciprocity law failure in photographic exposure—1058(A)
West, C. D. and A. S. Makas. Spectral dispersion of birefringence, especially of birefringent plastic sheets—791
—— (see Blake, R. P.)—1054(A)
Weyl, W. A. and A. I. Cramer. Photosensitivity of mechanical mixtures of non-sensitive compounds—889(L)
—— **and D. P. Enright.** Photosensitivity of metal halides as affected by adsorbed ions—889(L)
White, Harvey E. Book review—412
Wilber, D. T. Phosphorescent response to sinusoidal excitation—627(A), 673
Wilcock, W. L. On a paper by Vašiček concerning reflection from multilayer films—889(L)
Wilkins, J. Ernest, Jr. (see Osterberg Harold—553
Williams, Ferd E. Review of the interpretations of luminescence phenomena—648
—— (see Johnson, James S., Jr.)—629(A), 709
—— (see Parkinson, W. W., Jr.)—627(A), 705
—— (see Patten, Stanley H.)—629(A), 702
Williams, Franklin C. Objectives and methods of density measurement in color film sensitometry—1058(A)
Williams, Stanley B. Visibility on cathode-ray tube screens: viewing angle—782
—— (see Bartlett, N. R.)—463
Williamson, D. E. Infra-red interference filter used in calibration—613(L)
Windle, M. (see Magrun, W.)—1060(A)
Wissler, Franklyn C. (see Osterberg, Harold)—558, 638(A)
Wolf, E. (see Linfoot, E. H.)—752
Wolfe, R. A. (see Enns, J. H.)—298
Woodruff, J. F. Use of briquetted samples in the spectrochemical analysis of carbon and alloy steels and other metals—1061(A)
Woodson, Robert A. Fresnel diffraction near a narrow slit —1059(A)
Wooters, Glenn. Establishment of lens centering tolerances —1059(A)

Yoder, Paul, Jr. (see Rank, D. H.)—36
Young, F. Mansfield (see Hardy, Arthur C.)—265, 638(A)
—— (see Hardy, Arthur C.)—460, 634(A)

Zernike, Frits. New method for the accurate measurement of phase differences—1059(A)
—— (see Saylor, Charles Proffer)—1053(A)

JOURNAL OF THE OPTICAL SOCIETY OF AMERICA VOLUME 39, NUMBER 12 DECEMBER, 1949

Analytic Subject Index to Volume 39

References with (A) are to abstracts of papers presented at meetings of the Optical Society of America. (L) designates Letters to the Editor.

Absorption, including absorption spectra
Absorption spectrum of benzotrifluoride vapor in the near ultraviolet, H. Sponer and D. S. Lowe—840
Absorption spectrum of 1,2,4-trichlorobenzene in the near ultraviolet, Hedwig Kohn and H. Sponer—75
High members of the principal series in caesium, J. Rand McNally, Julius P. Molnar, William J. Hitchcock, and Norman F. Oliver—57
Infra-red absorption analyses used in control of a pilot-plant process, D. L. Fry—402
Infra-red absorption spectra of ten substituted methanes, Earle K. Plyler and W. S. Benedict—635(A)
Optimum absorption, John E. Tyler—264(L)
Presentation of absorption spectra data, Wallace R. Brode —1022
Some new techniques in the construction of spectrographic absorption cells, Gilbert Kivenson, Albert Roth, and Myrtle Rider—484
Vacuum ultraviolet monochromator for absorption and photoconductivity measurements on luminescent solids, W. W. Parkinson, Jr. and Ferd E. Williams—705, 627(A)
Announcements
Electronics for spectroscopists—983
Inauguration, George Eastman House—993

Announcements (continued)
In memoriam:
A. Herman Pfund—325
Frank Benford—325
Installation of the New England Section of the Optical Society of America, 566
International Commission of Optics—486
Inter-Society Color Council—Seventeenth Annual Meeting—56
London Conference on Optical Instruments, July, 1950—1037
Notice of election of officers of the Optical Society of America—326
Physics Abstracts—277, 887
Publication costs and a new format, editorial comment—93
Symposium on fine particles and resolution—405
Symposium on molecular structure and spectroscopy—202
Symposium on spectroscopic light sources—186
Table of sines and cosines to fifteen decimal places at hundredths of a degree—781

Biological applications
Chromaticity confusions of color defectives, Dean Farnsworth—1056(A)
Color perceptions of deuteranopic and protanopic observers, Deane B. Judd—252
Comment on the note entitled "Retinal cones as dielectric antennas," Brian O'Brien—324(L)
Physiological and pharmacological studies of blood from x-ray personnel, David I. Macht, Marcus Ostro, and Stanley H. Macht—632(A)
Retina cones as dielectric antennas, G. Toraldo di Francia—324(L)
Spectrophotometric studies of living human skin in the ultraviolet, Seibert Q. Duntley, Edward A. Edwards, and Nisson A. Finkelstein—1056(A)
Standard response functions for protanopic and deuteranopic vision, Deane B. Judd—505(L)
Tritanopia with abnormally heavy ocular pigmentation, Deane B. Judd and Lorenzo Plaza—1056(A)

Book reviews
Absorption spectrophotometry, by G. F. Lothian, Wallace R. Brode—528
Atomic energy levels—as derived from the analysis of optical spectra, prepared at the National Bureau of Standards, Harvey E. White—412
Comparative list of color terms, compiled by Sidney M. Newhall and Josephine G. Brennan, Deane B. Judd—765
High current carbon arc, by Wolfgang Finkelnburg, Henry Margenau—489
Physical aspects of color, by P. J. Bouma, Herbert E. Ives—297
Spectrographic analysis of soils, plants, and related materials, by R. L. Mitchell, Mary Warga—911
Vision and the eye, by M. H. Pirenne, Irving H. Wagman—264

Color and colorimetry
Apparent colors of surfaces of small subtense—a preliminary report, W. E. Knowles Middleton and Marian C. Holmes—582, 631(A)
Calculation of subtractive color mixtures, H. R. Davidson—1056(A)
Chromaticity confusions of color defectives, Dean Farnsworth—1056(A)
Color correction in optical systems and types of glass, M. Herzberger and H. Jenkins—1058(A)
Colorimetry by abridged spectrophotometry, Arthur C. Hardy and Mansfield Young—460, 634(A)
Colorimetric analysis of dye mixtures, David L. MacAdam—22
Colors of natural objects and terrains, and their relation to visual color deficiency, Charles D. Hendley and Selig Hecht—630(A), 870
Color perceptions of deuteranopic and protanopic observers, Deane B. Judd—252
Color phase contrast: requirements and applications, Charles Proffer Saylor, Arthur T. Brice, and F. Zernike—1053(A)
Color translating ultraviolet microscopy and ultraviolet spectrophotometry, Elkan R. Blout and Miriam S. Flower—636(A)
Comparison of color systems with respect to uniform visual spacing, Robert W. Burnham—387
Comparison of direct colorimetry of titanium pigments with their indirect colorimetry based on spectrophotometry and a standard observer, Deane B. Judd—945
Continuous, automatic tristimulus integrator for use with the recording spectrophotometer, H. R. Davidson and L. W. Imm—633(A), 942
Design of a daylight filter for color film sensitometry, R. H. Bingham—633(A)
Diagnosing types of color deficiency by means of pseudo-isochromatic tests, Alphonse Chapanis—242
Electrical tristimulus integrator, E. W. Peterson, H. H. Grossman, J. L. Saunderson, and V. J. Caldecourt—1055(A)
Measurement of the influence of local adaptation on color matching, David L. MacAdam—454, 631(A)
Metameric colors and macular pigment, Walter C. Granville and Deane B. Judd—632(A)
Methods of color translation, R. Clark Jones—636(A)
Munsell renotations used to study color space of Hunter and of Adams, Dorothy Nickerson—1055(A)
On some aspects of white, gray, and black, Ralph M. Evans—774
Plochere color system: a descriptive analysis, W. E. Knowles Middleton—633(A)
Ridgway color standards with a Munsell notation key, D. H. Hamly—592, 633(A)
Secondary color in optical relay systems, R. E. Hopkins—919, 1059(A)
Subtractive color reproduction. The approximate reproduction of selected colors, W. L. Brewer, W. T. Hanson, Jr., and C. A. Horton—924
Tristimulus computation in the dyestuff and textile field, I. H. Godlove—633(A)
Tritanopia with abnormally heavy ocular pigmentation, Deane B. Judd and Lorenzo Plaza—1056(A)
Visual sensitivities to combined chromaticity and luminance differences, W. R. J. Brown and D. L. MacAdam—808

Densitometry
Objectives and methods of density measurement in color film sensitometry, Franklin C. Williams—1058(A)
Optical and electrical alterations to a Michigan microphotometer, H. H. Grossman, E. W. Peterson, J. L. Saunderson, and V. J. Caldecourt—261
Photoelectric reflection-transmission densitometer, R. L. Huber and A. B. Rakus—873

Dispersion
Spectral dispersion of birefringence, especially of birefringent plastic sheets, C. D. West and A. S. Makas—791

Electro-optics
Electro-optic effect in uniaxial crystals of the type X H_2PO_4. I. Theoretical, Bruce H. Billings—797

Electro-optic effect in uniaxial crystals of the type X H_2PO_4. II. Experimental, Bruce H. Billings—802

Eye

Absolute thresholds and night myopia, J. M. Otero, L. Plaza, and F. Salaverri—167

Coefficient of specific resolution of the human eye for Foucault test objects viewed through circular apertures, Howard S. Coleman, Madeline F. Coleman, David L. Fridge, and Samuel W. Harding—766

Comment on the note entitled "Retinal cones as dielectric antennas," Brian O'Brien—324(L)

Comment on a "Note on the photo-pupil reflex," Henry A. Knoll—954(L)

Comparison of electrical and psychophysical determinations of the spectral sensitivity of the human eye, Lorrin A. Riggs, Richard N. Berry, and Matthew Wayner—427

Course of foveal light adaptation measured by the threshold intensity increment, Howard DeHaven Baker—172

Eye movements and the variation of visual acuity with test object orientation, W. R. J. Brown—1057(A)

Focusing wave-length for white light, A. Ivanoff—718(L)

Functional analysis of regional differences in the human fovea, Walter R. Miles—630(A)

Further remarks on the Stiles-Crawford effect, John R. Platt—614(L)

Microwave test of a theory of the Stiles and Crawford effect, J. N. Jean and Brian O'Brien—1057(A)

Note on the photo-pupil reflex, Jules de Launay—364

Prismatic properties of ophthalmic lenses, George Safonov and Robert Graham—406

Retina cones as dielectric antennas, G. Toraldo di Francia —324(L)

Spherical aberration of the eye, M. Koomen, R. Tousey, and R. Scolnik—370

Standard response functions for protanopic and deuteranopic vision, Deane B. Judd—505(L)

Steadiness of the eye, Lorrin A. Riggs and Floyd Ratliff —630(A)

Threshold gradient of rods and cones, in the dark-adapted and in the partially light-adapted eye, Louise L. Sloan —630(A)

Filters

Birefringent filter, John W. Evans—229, a correction—412

Design of a daylight filter for color film sensitometry, R. H. Bingham—633(A)

Dielectric interferometer filter, Harry D. Polster—1054(A)

Experimental study of Dennison-Hadley infra-red reflection filters, E. E. Barr—634(A)

Experimental study of Turner frustrated total reflection filters in the infra-red, B. H. Billings—634(A)

Frustrated total reflection filter for the infra-red, Bruce H. Billings and M. A. Pittman—978

Infra-red interference filter used in calibration, D. E. Williamson—613(L)

Infra-red transmitting filters, E. R. Blout, R. S. Corley, and P. L. Snow—634(A)

Reflection from a multilayer filter, Harry D. Polster—1038

Fluorescence and phosphorescence

Asymptotic behavior of spontaneous and forced decay, F. Urbach, N. R. Nail, and D. Pearlman—628(A), 675

Characteristics of fluorescent emission under near ultraviolet radiation, C. E. Barnett and L. D. Grady—627(A)

Correlation between cathodoluminescence efficiency and decay as a function of temperature, Richard H. Bube—628(A), 681

Emission characteristics of fluorescent pigments, C. E. Barnett and L. D. Grady—663

Emission spectrum of manganese-activated magnesium germanate, Stanley H. Patten and Ferd E. Williams—629(A), 702

Fluorescence studies of plutonium and neptunium, George R. Price—1054(A)

Inertia effects in infra-red sensitive phosphors, F. R. Scott, R. H. Thompson, and R. T. Ellickson—64

Intrinsic efficiency of the cathodoluminescence process, R. L. Longini—877

Luminescence of photo-conducting phosphors, G. F. J. Garlick and A. F. Gibson—935

Luminescence of zinc sulfide activated by lead, N. W. Smit and F. A. Kröger—661

Measurement of the luminescence of fluoroscopic x-ray screens, R. H. Peckman—626(A), 714

Multibanded emission spectra of zinc-cadmium sulfide phosphors, W. H. Byler—91(L)

New observations on superlinear luminescence, N. R. Nail, F. Urbach, and D. Pearlman—628(A), 690

Observation of temperature distributions and of thermal radiation by means of non-linear phosphors, F. Urbach, N. R. Nail, and D. Pearlman—1011

Optical and electrical properties of zinc silicate phosphors, Elemér Nagy—42, 628(A)

Optical properties of calcium silicate phosphors, Frank J. Studer and Gorton R. Fonda—655

Phosphorescence decay of halophosphates and other doubly activated phosphors, Frank J. Studer and Alma Rosenbaum—627(A), 685

Phosphorescent response to sinusoidal excitation, D. T. Wilber—627(A), 673

Photo-conductivity in crystal phosphors, Rudolf Frerichs —1053(A)

Photometric evaluation of luminous materials for naval uses, W. S. Plymale, Jr. and L. H. Dawson—626(A), 712

Review of the interpretations of luminescence phenomena, Ferd E. Williams—648

Rise in brightness of infra-red sensitive phosphors, Robert C. Herman and Charles F. Meyer—729

Simplified Lenard phosphors, D. Pearlman, P. E. Goddard, and F. Urbach—628(A), 695

Sodium and lithium as activators of fluorescence in zinc sulfide, F. A. Kröger—670

Some applications of non-linear phosphors, Franz Urbach, Nelson R. Nail, and Donald Pearlman—629(A)

Survey of present methods used to determine the optical properties of phosphors, Wayne B. Nottingham—641

Temperature-dependent structure of the emission spectra of two crystalline forms of the zinc silicate: Mn phosphor, R. E. Shrader—629(A), 699

Thermoluminescence of manganese-activated zinc fluoride phosphors, James S. Johnson, Jr. and Ferd E. Williams —629(A), 709

Vacuum ultraviolet monochromator for absorption and photo-conductivity measurements on luminescent solids, W. W. Parkinson, Jr. and Ferd E. Williams—627(A), 705

Visual sensitivities of combined chromaticity and luminance differences, W. R. J. Brown and D. L. MacAdam—808

Glass, properties of

Index of refraction and coefficients of expansion of optical glasses at low temperatures, Fred A. Molby—600

Illumination

Green segment seen from an airplane, E. O. Hulburt—409(L)

Night sky brightness measurements in latitudes below 45°, E. O. Hulburt—211

Illumination (continued)
Some variables influencing vernier acuity. I. Illumination and exposure time. II. Wave-length of illumination, Katherine Eleanor Baker—567
Ultrafrequency excitation of Hg 198 lamps for interferometer illumination, Edward Jacobsen and George R. Harrison—1054(A)

Infra-red
Aberrations in ellipsoidal mirrors used in infra-red spectrometers, J. Rud Nielsen—59
Carbon arc as an infra-red source, C. S. Rupert and John Strong—1060(A)
Determination of flame temperatures by infra-red radiation, Shirleigh Silverman—275
Direct recording of spectra in the region of 1.2 μ to 3 μ using the lead sulfide photo-conductive cell, R. C. Nelson—68
Experimental study of Dennison-Hadley infra-red reflection filters, E. E. Barr—634(A)
Experimental study of Turner frustrated total reflection filters in the infra-red, B. H. Billings—634(A)
Extensions to the analysis of the infra-red spectra of the noble gases, Curtis J. Humphreys—1059(A)
Frustrated total reflection filter for the infra-red, Bruce H. Billings and M. A. Pittman—978
Improvement in routine analysis with the Beckman I.R. 2 infra-red spectrophotometer by a slight mechanical modification, A. F. Cornu and P. A. Tardy—613(L)
Inertia effects in infra-red sensitive phosphors, F. R. Scott, H. R. Thompson, and R. T. Ellickson—64
Infra-red absorption analyses used in control of a pilot-plant process, D. L. Fry—402
Infra-red absorption spectra of the ten substituted methanes, Earl K. Plyler and W. S. Benedict—635(A)
Infra-red emission spectra of the oxy-hydrogen and oxy-deuterium flames, S. Silverman and R. C. Herman—216
Infra-red interference filter used in calibration, D. E. Williamson—613(L)
Infra-red microspectroscopy, Elkan R. Blout, George R. Bird, and David S. Grey—1052(A)
Infra-red spectrophotometer with cathode-ray display, A. C. Menzies—1061(A)
Infra-red transmitting filters, E. R. Blout, R. S. Corley, and P. L. Snow—634(A)
Low temperature infra-red transmission cell, H. O. McMahon, R. M. Hainer, and Gilbert W. King—786
Molecular-type dichroic film polarizers for 0.75 to 2.8 μ-radiations, R. P. Blake, A. S. Makas, and C. D. West—1054(A)
Optical transmission of additively colored alkali halide crystals in the visible and near infra-red, H. Friedman and C. P. Glover—795(L)
Performance of a new double beam infra-red spectrophotometer, John U. White and Max D. Liston—634(A)
Photographic action of x-rays in the 1.3 to 0.01A range, Herman Hoerlin—891
Rapid scanning spectrometer for the near infra-red, B. W. Bullock and S. Silverman—634(A)
Reflectance and transmittance measurements of thin evaporated metallic films in the infra-red, Max Oldham—634(A)
Refractive index of silver chloride for visible and infra-red radiant energy, Leroy W. Tilton, Earl K. Plyler, and Robert E. Stephens—1060(A)
Rise in brightness of infra-red sensitive phosphors, Robert C. Herman and Charles F. Meyer—729
Spectra of argon, krypton, and xenon between 1.2 and 2.2 microns, W. R. Sittner and E. R. Peck—474, 635(A)
Use of polytrifluorochloroethylene in infra-red and Raman spectroscopy, J. S. Kirby-Smith and Ernest A. Jones—780

Intensity measurements
Effect of finite aperture on the fringe intensity distribution of Fabry Perot interferometers, Felix E. Geiger, Jr.—249
Influence of extraneous elements on line intensity. IV. Extraneous element effects in the direct-current arc, Wallace R. Brode and Donald L. Timma—478
Method of measuring high intensities at the focus of a parabolic reflector with large relative aperture, George E. Davis—541

Interference
Dielectric interferometer filter, Harry D. Polster—1054(A)
Effect of finite aperture on the fringe intensity distribution of Fabry Perot interferometers, Felix E. Geiger, Jr.—249
Haidinger fringes in a basal section of calcite, Bruce H. Billings—39
Infra-red interference filter used in calibration, D. E. Williamson—613(L)
Instrumental and Doppler broadening in the Fabry Perot interference pattern of close doublets, P. M. Griffin and J. R. McNally, Jr.—636(A)
Interference phenomenon in the schlieren system, E. L. Gayhart and Rochelle Prescott—546
Recording interferometer for precision wave-length determinations, W. R. Sittner and E. R. Peck—544
Transmission and reflection coefficients of aluminum films for interferometry, M. F. Crawford, W. M. Gray, A. L. Schawlow, and F. M. Kelly—888(L)
Ultrafrequency excitation of Hg 198 lamps for interferometer illumination, Edward Jacobsen and George R. Harrison—1054(A)

Lenses and mirrors
Aberrations in ellipsoidal mirrors used in infra-red spectrometers, J. Rud Nielsen—59
Analysis of para-elliptic reflector, Benjamin Goldberg and Nels C. Benson—497, 631(A)
Comparison of lens radii, G. A. Harle—718(L)
Method of measuring the contrast rendition of telescopic systems, Howard S. Coleman, George W. Arnold, Jr., and Walter D. Luedecke—864
Method of measuring high intensities at the focus of a parabolic reflector with large relative aperture, George E. Davis—541
Oblique reflecting systems, Bernard S. Lee—487
On the preparation of hard oxide films with precisely controlled thickness on evaporated aluminum mirrors, Georg Hass—532, 632(A)
Prismatic properties of ophthalmic lenses, George Safonov and Robert Graham—406
Sensitivity of rapid test for high speed parabolic mirrors, D. H. Rank, Paul Yoder, Jr., and Joseph Vrabel—36
Seventy-two-inch high vacuum evaporator and its glow discharge equipment, Nels C. Benson, Georg Hass, and Noel W. Scott—632(A)
Silicon monoxide protected front-surface mirrors, Georg Hass and Noel W. Scott—179
Some notes on the designing of aspherical magnifiers for binocular vision, C. E. Coulman and G. R. Petrie—612(L)
X-ray optics: imperfections of optical flats and their effect on the reflection of x-rays, W. Ehrenberg—746

Letters to the Editor
Combustion studies with the orthicon spectrograph, J. T. Agnew, R. G. Franklin, R. E. Benn, and A. Bazarian—409

Comment on a "Note on the photo-pupil reflex," Henry A. Knoll—954
Comment on the note entitled "Retinal cones as dielectric antennas," Brian O'Brien—324
Comparison of lens radii, G. A. Harle—718
Focusing wave-length for white light, A. Ivanoff—718
Further remarks on the Stiles-Crawford effect, John R. Platt—614(A)
Green segment seen from an airplane, E. O. Hulburt—409
Improvement in routine analysis with the Beckman I.R. 2 infra-red spectrophotometer by a slight mechanical modification, A. F. Cornu and P. A. Tardy—613
Infra-red interference filter used in calibration, D. E. Williamson—613
International colloquium on solid thin films, P. Jacquinot and P. Rouard—1048
Light quanta and vision, Hl. de Vries—201
Mount for a Perot Fabry interferometer without etalon ring, Heinz Haber—1050
Multibanded emission spectra of zinc-cadmium sulfide phosphors, W. H. Byler—91
Multi-slit double monochromator using no moving parts, W. A. Shurcliff—1048
Nomograph of HG5461 structure as a function of etalon separation, J. R. McNally, Jr.—1050
Non-intermittent motion picture projection, William C. Plank—505
On a paper by Vašiček concerning reflection from multilayer films, W. L. Wilcock—889
On the mechanism of optical polishing, Kamalesh Ray—92
On the relative measurement of Kerr constants, Harold A. Scheraga, Marcus E. Hobbs, and Paul M. Gross—410
On the standard source for low level photometry, J. Terrien—888
On the utilization of complex optical constants, Frank Matossi—506
Optical transmission of additively colored alkali halide crystals in the visible and near infra-red, H. Friedman and C. P. Glover—795
Optimum absorption, John E. Tyler—264
Photosensitivity of mechanical mixtures of non-sensitive compounds, W. A. Weyl and A. I. Cramer—889
Photosensitivity of metal halides as affected by adsorbed ions, W. A. Weyl and D. P. Enright—889
Radiant heat transfer to receivers moving along the axis of a right circular cylindrical chamber, S. S. Penner—200
Rapid scanning spectrometer for oscillographic recording, B. W. Bullock and S. Silverman—200
Reflecting power of glass with a thin and with a thick film, Antonin Vašiček—409
Retina cones as dielectric antennas, G. Toraldo di Francia—324
Some notes on the designing of aspherical magnifiers for binocular vision, C. E. Coulman and G. R. Petrie—612
Standard response functions for protanopic and deuteranopic vision, Deane B. Judd—505
Transmission and reflection coefficients of aluminum films for interferometry, M. F. Crawford, W. M. Gray, A. L. Schawlow, and F. M. Kelly—888
X-ray images by refractive focusing, Paul Kirkpatrick—796

Light sources, properties and measurements

Air interrupter type spectrographic light source, J. H. Enns and R. A. Wolfe—298
Night sky brightness measurements in latitudes below 45°, E. O. Hulburt—211
Possibility of enhanced Hg^{200} as a source of monochromatic light, J .R. McNally, Jr., P. M. Griffin, and L. E. Burkhart—1036
Trapping of fluorescent light produced within objects of high geometrical symmetry, W. A. Shurcliff and R. Clark Jones—912
Ultraviolet light sources, Charles H. Matz and Dwight P. Merrill—635(A)

Meetings

Minutes of the thirty-third meeting of the Board of Directors of the Optical Society of America, Incorporated—615
Minutes of the thirty-fourth meeting of the Board of Directors of the Optical Society of America, Incorporated—1063
Proceedings of the winter meeting of the Optical Society of America—626
Proceedings of the thirty-fourth annual meeting of the Optical Society of America—1052

Microscopy

Color phase contrast: requirements and applications, Charles Proffer Saylor, Arthur T. Brice, and F. Zernike—1053(A)
Color translating ultraviolet microscopy and ultraviolet spectrophotometry, Elkan R. Blout and Miriam S. Flower—636(A)
Extension of Toraldo's theory of phase contrast, L. Ivan Epstein—1053(A)
Image contrast in phase-contrast microscopy, Paul H. Keck and Arthur T. Brice—507
Infra-red microspectroscopy, Elkan R. Blout, George R. Bird, and David S. Grey—1052(A)
Motion pictures of some optical and electrical effects in barium titanate crystals, Norman J. Field and A. P. DeBretteville, Jr.—1053(A)
New family of microscope objectives, David S. Grey—635(A)
New series of microscope objectives. I. Catadioptric Newtonian systems, David S. Grey and Paul H. Lee—719
New series of microscope objectives. II. Preliminary investigation of catadioptric Schwarzschild systems, David S. Grey—723
Resolution of two particles in a bright field by coated microscope objectives, Harold Osterberg and Franklyn C. Wissler—558, 638(A)
Resolving power of a coated objective. II., J. Ernest Wilkins—638(A)

Optical instruments

Analysis of para-elliptic reflector, Benjamin Goldberg and Nels C. Benson—497
Combustion studies with the orthicon spectrograph, J. T. Agnew, R. G. Franklin, R. E. Benn, and A. Bazarian—409(L)
Direct recording of spectra in the region 1.2 μ to 3 μ using the lead sulfide photo-conductive cell, R. C. Nelson—68
Effect of the angular aperture of a telephotometer on the telephotometry of collimated and non-collimated beams, W. E. Knowles Middleton—576
High index refractometer, A. H. Pfund—966
Improved gloss recorder, Richard S. Hunter—1056(A)
Low temperature infra-red transmission cell, H. O. McMahon, R. M. Hainer, and Gilbert W. King—786
Modified schlieren apparatus for large areas of field, Ralph A. Burton—907
New improved refractometer, A. H. Pfund, E. J. Weichel, and B. H. Billings—631(A)

Optical instruments (continued)
New spectrophotometer employing a glass Fery prism, W. C. Miller, G. Hare, D. C. Strain, K. P. George, M. E. Stickney, and A. O. Beckman—377
Oblique reflecting systems, Bernard S. Lee—487
On the relative measurement of Kerr constants, Harold A. Scheraga, Marcus E. Hobbs, and Paul M. Gross—410 (L)
Optical and electrical alterations to a Michigan microphotometer, H. H. Grossman, E. W. Peterson, J. L. Saunderson, and V. J. Caldecourt—261
Photoelectric reflection-transmission densitometer, R. L. Huber and A. B. Rakus—873
Prismatic properties of ophthalmic lenses, George Safonov and Robert Graham—406
Production of diffraction gratings. I. Development of the ruling art, George R. Harrison, 413
Production of diffraction gratings. II. The design of eschelle grating and spectrographs, George R. Harrison —522
Rapid mobile analyzer for minute amounts of lead in air, Henry Aughey—292
Rapid scanning spectrometer for oscillographic recording, B. W. Bullock and S. Silverman—200(L)
Ray tracing with the selective sequence electronic calculator, H. R. J. Grosch—1059(A)
Recording interferometer for precision wave-length determinations, W. R. Sittner and E. R. Peck—544
Reflected light and ghosts in optical systems, Allen E. Murray—30
Relation between entrance and exit pupils of telescopic systems, Irvine C. Garner—638(A)
Resolution of two particles in a bright field by coated microscope objectives, Harold Osterberg and Franklyn C. Wissler—558, 638(A)
Resolving power of a coated objective, Harold Osterberg and J. Ernest Wilkins, Jr.—553
Seventy-two-inch high vacuum evaporator and its glow discharge equipment, Nels C. Benson, Georg Hass, and Noel W. Scott—632(A)
Some new techniques in the construction of spectrographic absorption cells, Gilbert Kivenson, Albert Roth, and Myrtle Rider—484
Some notes on the designing of aspherical magnifiers for binocular vision, C. E. Coulman and G. R. Petrie—612(L)
Transmission of light from diffuse sources by periscope tubes, F. P. Bundy and H. M. Strong—393; Addendum —698

Optical materials
Artificial fluorite, Donald C. Stockbarger—731
Artificial sapphire for optical elements, Robert E. Hopkins and Brian O'Brien—1060(A)
Auxiliary working standard equivalent to magnesium oxide on a General Electric spectrophotometer,. Joseph W. Gabel and E. I. Stearns—481
Birefringent filter, John W. Evans—229
Comparison of lens radii, G. A. Harle—718(L)
Design of a daylight filter for color film sensitometry, R. H. Bingham—633(A)
Emulsion calibration scale for quantitative spectroscopic analysis, Harold K. Hughes and R. W. Murphy—501
Influence of magnification on resolving power of telescopic systems for Foucault test objects of different inherent contrast, Howard S. Coleman, Madeline F. Coleman, and Samuel W. Harding—771
Motion pictures of some optical and electrical effects in barium titanate crystals, Norman J. Field and A. P. DeBretteville, Jr.—1053(A)
On the mechanism of optical polishing, Kamalesh Ray—92(L)
Optical and electrical properties of zinc silicate phosphors, Elemér Nagy—42
Optical properties of calcium silicate phosphors, Frank J. Studer and Gorton R. Fonda—655
Preliminary measurements of the cold flow of silver chloride and thallium bromide-iodide, Lewis S. Combes, James R. Travis, and Stanley S. Ballard—635(A)
Spectral dispersion of birefringence, especially of birefringent plastic sheets, C. D. West and A. S. Makas, 791
Transmission and reflection coefficients of aluminum films for interferometry, M. F. Crawford, W. M. Gray, A. L. Schawlow, and F. M. Kelly—888(L)

Optical Society of America reports
Annual report of the Editor of Publications—615
Annual report of the Secretary of the Optical Society of America, Incorporated, for the calendar year 1948—616
Annual report of the Treasurer of the Optical Society of America—619

Optical testing
Coefficient of specific resolution of the human eye for Foucault test objects viewed through circular apertures, Howard S. Coleman, Madeline F. Coleman, David L. Fridge, and Samuel W. Harding—766
Contrast discrimination charts for demonstrating the effect of anoxia on vision, Selig Hecht, Charles D. Hendley, Sylvia Frank and Simon Shlaer—922
Differential adjustment method of refining optical system; Erratum, Waldemar M. Stempel—199
Experimental studies of the reduction of apparent contrast by water, Seibert Q. Duntley—629(A)
Measurement of meteorological range in water, Seibert Q. Duntley—630(A)
On the mechanism of optical polishing, Kamalesh Ray—92(L)
On the relative measurement of Kerr constants, Harold A. Scheraga, Marcus E. Hobbs, and Paul M. Gross—410 (L)
Preparation and application of reproducible gloss standards, Daniel Smith and Marie M. Mahoney—86

Optics, general
Artificial sapphire for optical elements, Robert E. Hopkins and Brian O'Brien—1060(A)
Coma of slightly decentered wide aperture systems, L. Ivan Epstein—631(A)
Electrical and optical properties of zinc silicate phosphors, Elemér Nagy—628(A)
Low temperature radiation pyrometry in industry, J. C. Mouzon and C. A. Dyer—203
New classification system for radiation detectors, R. Clark Jones—327
On the mechanism of optical polishing, Kamalesh Ray—92(L)
On the utilization of complex optical constants, Frank Matossi—506(L)
Optical characteristics of sheets of scattering materials, R. L. Longini—551
Optical properties of calcium silicate phosphors, Frank J. Studer and Gorton R. Fonda—655
Optical theory of the spectral sensitivity of a caesium oxide photo-cathode, Yoshihiro Sayama—162
Optical transmission of additively colored alkali halide crystals in the visible and near infra-red, H. Friedman and C. P. Glover—795(L)
Reflected light and ghosts in optical systems, Allen E. Murray—30
Relation between entrance and exit pupils of telescopic systems, Irvine C. Gardner—638(A)
Secondary color in optical relay systems, Robert E. Hopkins—1059(A)
Solar spectroscopy with a Cashman cell, Robert R. McMath and Orren C. Mohler—903

Some notes on the designing of aspherical magnifiers for binocular vision, C. E. Coulman and G. R. Petrie—612(L)
Spectral dispersion of birefringence, especially of birefringent plastic sheets, C. D. West and A. S. Makas—791
Transmission and reflection coefficients of aluminum films for interferometry, M. F. Crawford, W. M. Gray, A. L. Schawlow, and F. M. Kelly—888(L)
Transmission of light from diffuse sources by periscope tubes, F. P. Bundy and H. M. Strong—393; Addendum—698
X-ray optics: imperfections of optical flats and their effect on the reflection of x-rays, W. Ehrenberg—746
X-ray optics: the production of converging beams by total reflection, W. Ehrenberg—741

Optics, geometrical

Aberrations of slightly decentered optical systems, L. Ivan Epstein—847
Correction of slit-width errors, Arthur C. Hardy and F. Mansfield Young—265, 638(A)
Direct calculation of achromatized and corrected optical systems, Ernesto E. Geiger—193
Establishment of lens centering tolerances, Glenn Wooters—1059(A)
Fraunhofer diffraction patterns of squares and rectangles, Edward S. Lamar—929
Fresnel diffraction near a narrow slit, Robert A. Woodson—1059(A)
General theory of isoplanatism for finite aperture and field, Mario Di Jorio—305
New method for the accurate measurement of phase differences, Frits Zernike—1059(A)
Optical characteristics of sheets of scattering materials, R. L. Longini—551
Ray tracing with the selective sequence electronic calculator, H. R. J. Grosch—1059(A)
Resolution of two particles in a bright field by coated microscope objectives, Harold Osterberg and Franklyn C. Wissler—558, 638(A)
Resolving power of a coated objective, Harold Osterberg and J. Ernest Wilkins, Jr.—553
Transmission of light from diffuse sources by periscope tubes, F. P. Bundy and H. M. Strong—393; Addendum—698
Trapping of fluorescent light produced within objects of high geometrical symmetry, W. A. Shurcliff and R. Clark Jones—912

Optics, physical

Analysis of elliptical polarization, M. Richartz and Hsein-Yü Hsü—136
Anomalous rotational isotope effect in mercury hydride, S. Mrozowski—1061(A)
Formation of fringes in a babinet compensator, H. G. Jerrard—1031
Haidinger fringes in a basal section of calcite, Bruce H. Billings—39
Lorentz-type transformations as derived performable rod and clock operations, Herbert E. Ives—757
Measurement of meteorological range in water, Seibert Q. Duntley—630(A)
On the relative measurement of Kerr constants, Harold A. Scheraga, Marcus E. Hobbs, and Paul M. Gross—410(L)
On the utilization of complex optical constants, Frank Matossi—506(L)
Orientation of methylene blue molecules adsorbed on solids, Scott Anderson—49
Plastic deformation and crystal orientation of thallium halides, Alexander Smakula and Myron W. Klein—445; Erratum—890(L)
Remarks on the classical and quantum-mechanical treatment of partial polarization, U. Fano—859
Scattered and rescattered sunlight, A. Hammad—157
Scattering cross section of water drops in air for visible light, H. C. Houghton and W. R. Chalker—955
Study of the mechanism of modified Rayleigh scattering, D. H. Rank and J. P. McKelvey—762

Photoelectricity

Comparison of photographic and photoelectric measurements of atmospheric attenuation of brightness contrast, Howard S. Coleman and Harold E. Rosenberger—990
Photo-conductivity of crystal phosphors, Rudolf Frerichs—1053(A)
Photoelectric method of measuring the atmospheric attenuation of brightness contrast along a horizontal path for the visible region of the spectrum, Howard S. Coleman, Fred J. Morris, Harold E. Rosenberger, and Marshall J. Walker—515
Photoelectric reflection-transmission densitometer, R. L. Huber and A. B. Rakus—873

Photography, including cameras

Analytical equation of the emulsion calibration curve of photographic photometry, Milton Green and T. Schreiber—1058(A)
Camera shutters, Amrom H. Katz—1
Comparison of photographic and photoelectric measurements of atmospheric attenuation of brightness contrast, Howard S. Coleman and Harold E. Rosenberger—990
Dependence of the sensitivity of unsensitized photographic emulsions upon temperature, M. Biltz—994
Design of a daylight filter for color film sensitometry, R. H. Bingham—633(A)
Herschel effect and the structure and stability of the photographic latent image, G. Kornfeld—490
Latent image distribution by x-ray exposures, G. Kornfeld—1020
Non-intermittent motion picture projection, William C. Plank—505(L)
Objectives and methods of density measurement in color film sensitometry, Franklin C. Williams—1058(A)
On the corrector plates of Schmidt cameras, E. H. Linfoot and E. Wolf—752
Photogrammetric errors from camera lens decentering, P. D. Carman—632(A), 951
Photographic action of x-rays in the 1.3 to 0.01A range, Herman Hoerlin—891
Photographic spectral sensitometry with a biprism, Willoughby M. Cady and Gary Gordon—368
Photographing spectra in the vacuum ultraviolet, A. L. Schoen and Edwin S. Hodge—637(A)
Photosensitivity of mechanical mixtures of non-sensitive compounds, W. A. Weyl and A. I. Cramer—889(L)
Photosensitivity of metal halides as affected by adsorbed ions, W. A. Weyl and D. P. Enright—889(L)
Some remarks on gold treatment of photographic silver halide emulsions, F. W. H. Mueller—494, 639(A)
Study of low intensity reciprocity law failure in photographic exposure, Julian H. Webb—1058(A)
Sunlight and skylight as determinants of photographic exposure II. Scene structure, directional index, photographic efficiency of daylight, safety factors, and evaluation of camera exposure, Loyd A. Jones and H. R. Condit—94

Photometry

Analytical equation of the emulsion calibration curve of photographic photometry, Milton Green and T. Schreiber—1058(A)

Photometry (continued)
Multi-slit spectrometry, Marcel J. E. Golay—437
On the standard source for low level photometry, J. Terrien—888(L)
Orientation of methylene blue molecules adsorbed on solids, Scott Anderson—49
Photoelectric method of measuring the atmospheric attenuation of brightness contrast along a horizontal path for the visible region of the spectrum, Howard S. Coleman, Fred J. Morris, Harold E. Rosenberger, and Marshall J. Walker—515
Photometric evaluation of luminous materials for Naval uses, W. S. Plymale, Jr. and L. H. Dawson—626(A), 712
Preparation and application of reproducible gloss standards, Daniel Smith and Marie M. Mahoney, 86
Provisional standard observer for low level photometry, K. S. Weaver—278
Spectral dispersion of birefringence, especially of birefringent plastic sheets, C. D. West and A. S. Makas—791

Polarization
Analysis of elliptical polarization, M. Richartz and Hsien-Yü Hsü—136
Molecular-type dichroic film polarizers for 0.75 to 2.8 mμ radiations, R. P. Blake, A. S. Makas, and C. D. West—1054(A)
On the possibility of a spathic polarizer which transmits more than one-half of the incident unpolarized light, R. Clark Jones—1058(A)
Orientation of methylene blue molecules adsorbed on solids, Scott Anderson—49
Remarks on the classical and quantum-mechanical treatment of partial polarization, U. Fano—859

Pyrometry
Determination of flame temperatures by infra-red radiation, Shirleigh Silverman—275
Low temperature radiation pyrometry in industry, J. C. Mouzon and C. A. Dyer—203
Measurement of flame temperatures, Curtis J. Humphreys and Earle K. Plyler—639(A)
Observation of temperature distributions and of thermal radiation by means of non-linear phosphors, F. Urbach, N. R. Nail, and D. Pearlman—1011
Pyrometer for measurement of instantaneous temperatures of flames, J. H. Hett and J. B. Gilstein—909
Radiant heat transfer to receivers moving along the axis of a right circular cylindrical chamber, S. S. Penner—200(L)

Radiation
Conditions for blackbody radiation of gases, Wolfgang Finkelnburg—185
Emissivities of copper and aluminum, George Best—1009
Factors of merit for radiation detectors, R. Clark Jones—344
New classification system for radiation detectors, R. Clark Jones—327
On the ultimate sensitivity and practical performance of radiation detectors, P. B. Fellgett—970
Physiological and pharmacological studies of blood from x-ray personnel, David I. Macht, Marcus Ostero, and Stanley H. Macht—632(A)
Radiant heat transfer to receivers moving along the axis of a right circular cylindrical chamber, S. S. Penner—200(L)
Radiation slide rule and nomographs for the simplification of radiation calculations, Alfred H. Canada—639(A)
Scattered and rescattered sunlight, A. Hammad—157

Refraction
High index refractometer, A. H. Pfund—966
Index of refraction and coefficients of expansion of optical glasses at low temperatures, Fred A. Molby—600
New improved refractometer, A. H. Pfund and E. J. Weichel, and B. H. Billings—631(A)
Refractive indices of water vapor and carbon dioxide at low pressure, Kenneth B. Newbound—835
X-ray images by refractive focusing, Paul Kirkpatrick—796(L)

Spectrographic analysis
Air interrupter for use with the A.R.L. spark source, Emil Kaczor and Katherine Chamberlain—917, 637(A)
Air interrupter type spectrographic light source, J. H. Enns and R. A. Wolfe—298
Characteristics of pulsed arcs in spectrochemical analysis. Part I. Zinc alloys, D. A. Sinclair—958
Comparative results of photographic and direct reading methods of analysis of high alloy steels, W. Magrun, M. Windle, and J. H. Jurmain—1060(A)
D. c. arc source and automatic controller, G. H. Fetterley and W. M. Hazel—1060(A)
Detection of lead in air with the aid of a Geiger-Müller counter, O. G. Koppius—294
Emission spectra of technetium, William F. Meggers and Bourdon F. Scribner—1059(A)
Emulsion calibration paper for quantitative spectroscopic analysis, Harold K. Hughes and R. W. Murphy—637(A)
Extension to the analysis of the infra-red spectra of the noble gases, Curtis J. Humphreys—1059(A)
Fluorophotometric determination of uranium, George R. Price, Renato J. Ferretti, and Samuel Schwartz—1053(A)
Improvement in routine analysis with the Beckman I.R. 2 infra-red spectrophotometer by a slight mechanical modification, A. F. Cornu and P. A. Tardy—613(L)
Influence of extraneous elements on line intensity. IV. Extraneous element effects in the direct-current arc, Wallace R. Brode and Donald L. Timma—478
Introductory study of the spectral characteristics of ferrous alloys, J. Convey and J. K. Hurwitz—1061(A)
Laboratory-cast pin sample for the spectrographic analysis of copper-base alloys, E. W. Palmer, J. P. Irwin, and C. C. Fogg—637(A)
Presentation of adsorption spectra data, W. R. Brode—1022
Quantitative spectrographic analysis of the rare earth elements. III. Determination of major constituents in complex mixtures, Velmer A. Fassel—187
Rapid mobile analyzer for minute amounts of lead in air, Henry Aughey—292
Recent advances in the direct-reading analysis of high percentage alloys, M. F. Hasler—1062(A)
Sensitive fluorophotometers, George R. Price, Renato J. Ferretti, and Samuel Schwartz—1053(A)
Spectra of the heavy elements, Frank S. Tomkins and Mark Fred—357, 637(A)
Spectrographic analysis of high cobalt (vitallium) alloys, Y. T. Sihvonen, D. L. Fry, R. E. Nusbaum, and R. R. Baumgartner—257
Some new techniques in the spectrochemical analysis of non-metallic samples, M. F. Hasler and C. E. Harvey—638(A)
Use of briquetted samples in the spectrochemical analysis of carbon and alloy steels and other metals, J. F. Woodruff—1061(A)

Spectroscopy; spectrometry; spectrophotometry
Aberrations in ellipsoidal mirrors used in infra-red spectrometers, J. Rud Nielsen—59

Absorption spectrum of benzotrifluoride vapor in the near ultraviolet, H. Sponer and D. S. Lowe—840
Absorption spectrum of 1,2,4-trichlorobenzene in the near ultraviolet, Hedwig Kohn and H. Sponer—75
Analysis of elliptical polarization, M. Richartz and Hsien-Yü Hsü—136
Auxiliary working standard equivalent to magnesium oxide on a General Electric spectrophotometer, Joseph W. Gabel and E. I. Stearns—481
Cadmium spectra, A. G. Shenstone and J. T. Pittenger—219
Colorimetry by abridged spectrophotometry, Arthur C. Hardy and F. Mansfield Young—460, 634(A)
Color translating ultraviolet microscopy and ultraviolet spectrophotometry, Elkan R. Blout and Miriam S. Flower—636(A)
Combustion studies with the orthicon spectrograph, J. T. Agnew, R. G. Franklin, R. E. Benn, and A. Bazarian—409(L)
Correction of slit-width errors, Arthur C. Hardy and F. Mansfield Young—265, 638(A)
Detection of lead in air with the aid of a Geiger-Müller counter, O. G. Koppius—294
Direct recording of spectra in the region of 1.2 μ to 3 μ using the lead sulfide photo-conductive cell, R. C. Nelson—68
Emission spectra of technetium, William F. Meggers and Bourdon F. Scribner—1059(A)
Emission spectrum of manganese-activated magnesium germanate, Stanley H. Patten and Ferd E. Williams—702, 629(A)
Emulsion calibration scale for quantitative spectroscopic analysis, Harold K. Hughes and R. W. Murphy—501
Experimental study of Dennison-Hadley infra-red reflection filters, E. E. Barr—634(A)
Experimental study of Turner frustrated total reflection filters in the infra-red—634(A)
Extensions to the analysis of the infra-red spectra of the noble gases, Curtis J. Humphreys—1059(A)
Further classification of the spectrum of singly-ionized uranium, J. R. McNally, Jr. and G. R. Harrison—636(A)
Image orthicon in spectroscopy, R. E. Benn, W. S. Foote, and C. T. Chase—529
Improvement in routine analysis with the Beckman I.R. 2 infra-red spectrophotometer by a slight mechanical modification, A. F. Cornu and P. A. Tardy—613(L)
Influence of extraneous elements on line intensity. IV. Extraneous element effects in the direct-current arc, Wallace R. Brode and Donald C. Timma—478
Infra-red absorption spectra of ten substituted methanes, Earle K. Plyler and W. S. Benedict—635(A)
Infra-red emission spectra of the oxy-hydrogen and oxy-deuterium flames, S. Silverman and R. C. Herman—216
Infra-red interference filter used in calibration, D. E. Williamson—613(L)
Infra-red microspectroscopy, Elkan R. Blout, George R. Bird and David S. Grey—1052(A)
Infra-red spectrophotometer with cathode-ray display, A. C. Menzies—1061(A)
Laboratory-cast pin sample for the spectrographic analysis of copper-base alloys, E. W. Palmer, J. P. Irwin, and C. C. Fogg—637(A)
Multibanded emission spectra of zinc-cadmium sulfide phosphors, W. H. Byler—91(L)
Multi-slit double monochromator using no moving parts, W. A. Shurcliff—1048(L)
Multi-slit spectrometry, Marcel J. E. Golay—437
New "offset" method of interpreting spectrophotometric curves, W. A. Shurcliff and E. I. Stearns—72
New Raman spectrograph and source, A. C. Menzies—1061(A)
New spectrophotometer employing a glass Fery prism, W. C. Miller, G. Hare, D. C. Strain, K. P. George, M. E. Stickney, and A. O. Beckman—377
New spectrometer for production control quantometer, M. F. Hasler, R. W. Lindhurst, J. W. Kemp, and M. C. Kraushaar—1060(A)
Nomograph of HG5461 structure as a function of etalon separation, J. R. McNally, Jr.—1050(L)
Optical and electrical properties of zinc silicate phosphors, Elemér Nagy—42
Optical theory of the spectral sensitivity of a caesium oxide photo-cathode, Yoshihiro Sayama—162
Optimum absorption, John E. Tyler—264(L)
Orientation of methylene blue molecules adsorbed on solids, Scott Anderson—49
Out of focus diffraction patterns, L. Ivan Epstein—226
Performance of a new double beam infra-red spectrophotometer, John U. White and Max D. Liston—634(A)
Permanence of gloss standards issued to check the photometric scale of spectrophotometers, Kasson S. Gibson and Marion A. Belknap—1055(A)
Photoelectric method of measuring the atmospheric attenuation of brightness contrast along a horizontal path for the visible region of the spectrum, Howard S. Coleman, Fred J. Morris, and Harold E. Rosenberger, and Marshall J. Walker—515
Photographing spectra in the vacuum ultraviolet, A. L. Schoen and Edwin S. Hodge—637(A)
Photographic spectral sensitometry with a biprism, Willoughby M. Cady and Gary Gordon—368
Preliminary investigation of the spectra of uranium isotopes, J. Rand McNally, Jr.—271
Presentation of absorption spectra data, Wallace R. Brode—1022
Production of diffraction gratings. I. Development of the ruling art, George R. Harrison—413
Production of diffraction gratings. II. The design of echelle gratings and spectrographs, George R. Harrison—522
Quantitative spectrographic analysis of the rare earth elements. III. Determination of major constituents in complex mixtures, Velmer A. Fassel—187
Rapid mobile analyzer for minute amounts of lead in air, Henry Aughey—292
Rapid scanning spectrometer for oscillographic recording, B. W. Bullock and S. Silverman—200(L)
Rapid scanning spectrometer for the near infra-red, B. W. Bullock and S. Silverman—634(A)
Reflectance and transmittance measurements of thin evaporated metallic films in the infra-red, Max S. Oldham—634(A)
Resolution of two particles in a bright field by coated microscope objectives, Harold Osterberg and Franklyn C. Wissler—558, 638(A)
Resolving power limitations of grating and prism spectrometers, John Strong—320
Resolving power of a coated objective, Harold Osterberg and J. Ernest Wilkins, Jr.—553
Solar spectroscopy with a Cashman cell, Robert R. McMath and Orren C. Mohler—903
Some new techniques in the construction of spectrographic absorption cells, Gilbert Kivenson, Albert Roth, and Myrtle Rider—484
Spark spectra of elements 43 and 61, D. L. Timma—898
Spectral dispersion of birefringence, especially of birefringent plastic sheets, C. D. West and A. S. Makas—791

Spectroscopy (continued)
Spectral reflectance measurements in the ultraviolet, Nisson A. Finkelstein—1056(A)
Spectra of argon, krypton, and xenon between 1.2 and 2.2 microns, W. R. Sittner and E. R. Peck—474, 635(A)
Spectrographic analysis of high cobalt (vitallium) alloys, Y. T. Sihvonen, D. L. Fry, R. E. Nusbaum, and R. R. Baumgartner—257
Spectrophotometric studies of living human skin in the ultraviolet, Seibert Q. Duntley, Edward A. Edwards, and Nisson A. Finkelstein—1056(A)
Torus grating, Heinz Haber—1055(A)
Use of polytrifluorochloroethylene in infra-red and Raman spectroscopy, J. S. Kirby-Smith and Ernest A. Jones—780

Thin Films on Glass
Achromatic anti-reflection films, Paul Leurgans—639(A)
Infra-red transmitting filters, E. R. Blout, R. S. Corley, and P. L. Snow—634(A)
International colloquium on solid thin films, P. Jacquinot and P. Rouard—1048(L)
Method for measuring extremely small non-uniformities in the optical thickness of evaporated films, Alan E. Gee and Harry D. Polster—1044
On a paper by Vašiček concerning reflection from multilayer films, W. L. Wilcock—889(L)
On the preparation of hard oxide films with precisely controlled thickness on evaporated aluminum mirrors, Georg Hass—532, 632(A)
Reflectance and transmittance measurements of thin evaporated metallic films in the infra-red, Max S. Oldham—634(A)
Reflecting power of glass with a thin and with a thick film, Antonin Vašiček—409(L)
Reflection and transmission formulas for a film on a backing plate, Frank Matossi—928
Seventy-two-inch high vacuum evaporator and its glow discharge equipment, Nels C. Benson, Georg Hass, and Noel W. Scott—632(A)
Some properties of thin evaporated films on glass, Joseph L. Rood—854
Thickness non-uniformities in evaporated films, A. E. Gee and H. D. Polster—1054(A)

Transmission
Infra-red transmitting filters, E. R. Blout, R. S. Corley and P. L. Snow—634(A)
Low temperature infra-red transmission cell, H. O. McMahon, R. M. Hainer, and Gilbert W. King—786
Optical transmission of additively colored alkali halide crystals in the visible and near infra-red, H. Friedman and C. P. Glover—795(L)
Radiant heat transfer to receivers moving along the axis of a right circular cylindrical chamber, S. S. Penner—200(L)
Transmission of light from diffuse sources by periscope tubes, F. P. Bundy and H. M. Strong—393; Addendum—698

Ultraviolet
Absorption spectrum of benzotrifluoride vapor in the near ultraviolet, H. Sponer and D. S. Lowe—840
Absorption spectrum of 1,2,4-trichlorobenzene in the near ultraviolet, Hedwig Kohn and H. Sponer—75
Characteristics of fluorescent emission under near ultraviolet, C. E. Barnett and L. D. Grady—627(A)
Color translating ultraviolet microscopy and ultraviolet spectrophotometry, Elkan R. Blout and Miriam S. Flower—636(A)
New series of microscope objectives: II. Preliminary investigation of catadioptric Schwarzschild systems, David S. Grey—723
Photographing spectra in the vacuum ultraviolet, A. L. Schoen and Edwin S. Hodge—637(A)
Spectral reflectance measurements in the ultraviolet, Nisson A. Finkelstein—1056(A)
Spectrophotometric studies of living human skin in the ultraviolet, Seibert Q. Duntley, Edward A. Edwards, and Nisson A. Finkelstein—1056(A)
Ultraviolet characteristics of the high pressure xenon arc, William Baum and Lawrence Dunkelman—1055(A)
Ultraviolet light sources, Charles H. Matz and Dwight P. Merrill—635(A)
Vacuum ultraviolet monochromator for absorption and photo-conductivity measurements on luminescent solids, W. W. Parkinson, Jr. and Ferd E. Williams—627(A), 705

Vision, visibility; visual phenomena
Chromaticity confusions of color defectives, Dean Farnsworth—1056(A)
Color perceptions of deuteranopic and protanopic observers, Deane B. Judd—252
Colors of natural objects and terrains, and their relation to visual color deficiency, Charles D. Hendley and Selig Hecht—630(A), 870
Contrast discrimination charts for demonstrating the effect of anoxia on vision, Selig Hecht, Charles D. Hendley, Sylvia Frank, and Simon Shlaer—922
Diagnosing types of color deficiency by means of pseudo-isochromatic tests, Alphonse Chapanis—242
Experimental studies of the reduction of apparent contrast by water, Seibert Q. Duntley—629(A)
Eye movements and the variation of visual acuity with test object orientation, W. R. J. Brown—1057(A)
Further remarks on the Stiles-Crawford effect, John R. Platt—614(L)
Green segment seen from an airplane, E. O. Hulburt—409(L)
Light quanta and vision, Hl. de Vries—201(L)
Measurement of meteorological range in water, Seibert Q. Duntley—630(A)
Microwave test of a theory of the Stiles-Crawford effect, J. N. Jean and Brian O'Brien—1057(A)
Photopic thresholds for red light in an unselected sample of color deficient individuals, Alphonse Chapanis and R. M. Halsey—1057(A)
Some notes on the designing of aspherical magnifiers for binocular vision, C. E. Coulman and G. R. Petrie—612(L)
Standard response functions for protanopic and deuteranopic vision, Deane B. Judd—505(L)
Theory of the induced effect in binocular vision, Kenneth N. Ogle—1056(A)
Tritanopia with abnormally heavy ocular pigmentation, Deane B. Judd and Lorenzo Plaza—1056(A)
Visibility on cathode-ray tube screens. Effect of size and shape of pip, N. R. Bartlett, S. B. Williams, and R. M. Hanes—463
Visibility on cathode-ray tube screens: Signals on a P-7 screen exposed for different intervals, N. R. Bartlett and A. L. Sweet—470
Visibility on cathode-ray tube screens: Viewing angle, Stanley B. Williams—782
Visual acuity through various types and grades of sun glass lenses, R. H. Peckham—1057(A)
Visual sensitivities to combined chromaticity and luminance differences, W. R. J. Brown and D. L. MacAdam—808